

BROOKHAVEN NATIONAL LABORATORY

MEMORANDUM

TO: C-AD Personnel

FROM: J. Sandberg

SUBJECT: Use of Non-Contact voltage detectors

DATE: December 22, 2005

The use of non-contact voltage detectors, sometimes called Tic Tracers, is not an acceptable method for doing a zero energy check on electrical systems. While such devices may be UL approved and may be useful for preliminary testing of circuitry, the Department of Energy disallows their use in verifying circuits for the purposes of Lock Out / Tag Out (LOTO).

There are several significant limitations to these devices:

- 1) They cannot measure DC voltages. There are many sources of dangerously high DC voltages at C-AD. These include, power converters, Uninterruptible Power Supply battery banks, station batteries, and capacitive discharge devices.
- 2) They cannot measure voltages present on shielded cables.
- 3) They may not measure voltages on tightly coupled wiring such as twisted pair.
- 4) There have been many false readings using such device reported throughout the DOE complex.

One of the fundamental principles of electrical safety is to consider all electrical conductors energized unless properly LOTO'd. Proper LOTO requires that there be an *acceptable* zero energy check done on the conductors in question. Always check for AC, as well as DC voltage, when doing zero energy check.



Three Non-Contact Voltage Detectors commonly found at C-AD